

Novel Materials that Enhance Efficiency and Radiation Resistance of Solar Cells, Phase I

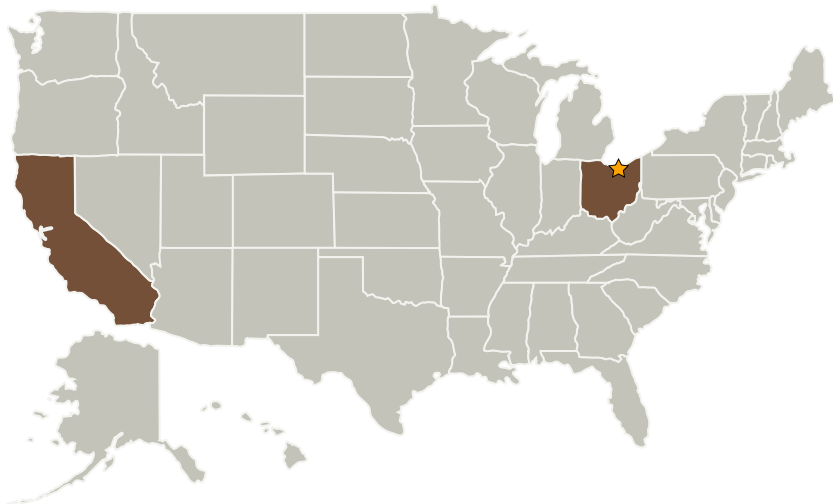
Completed Technology Project (2008 - 2008)



Project Introduction

Solar cell is the key device in generating electrical power for spacecrafts. It is an on-going challenge in maximizing electrical power available to spacecraft while reducing overall stowage volume and mass of solar array. While the "record" solar cells approach the theoretical limit after several decades of extensive R&D effort, it becomes ever-increasingly difficult and cost prohibitive to further increasing their efficiency, by continuingly playing with existing solar cell fabrication protocols. Sun Innovations proposes a highly innovative alternative approach in significantly increasing the solar cell efficiency (~10%), specific power density, the radiation resistance and lifetime, without adding much cost and weight to the existing solar cells. It is also a generic approach that shall enhance the efficiency and lifetime of most commercial solar cells for broad based commercial benefits. The key nano-crystalline materials will be developed in Phase I, to demonstrate the feasibility of the approach in record cells. The technology will be further developed in Phase II to be ready for commercialization in Phase III.

Primary U.S. Work Locations and Key Partners



Novel Materials that Enhance Efficiency and Radiation Resistance of Solar Cells, Phase I

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Novel Materials that Enhance Efficiency and Radiation Resistance of Solar Cells, Phase I

Completed Technology Project (2008 - 2008)



Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Sun Innovations, Inc.	Supporting Organization	Industry Minority-Owned Business	Fremont, California

Primary U.S. Work Locations

California	Ohio
------------	------

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Xiao-dong Sun

Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
 - └ TX03.1 Power Generation and Energy Conversion
 - └ TX03.1.1 Photovoltaic